

**IN THE SPECIFICATION:**

Please amend the specification by inserting the following paragraph at the beginning of the specification:

-- This application claims the benefit of priority of U.S. Provisional Application No. 60/423,591 filed in the United States Patent Office on November 5, 2002. --

Please amend the paragraph set forth at page 5, lines 3-10 of the specification as follows:

[0016] In addition to melt-extrusion, the method of solid-state shear pulverization has been developed for preparing polymer materials, as disclosed in U.S. Pat. No. 5,814,673 to Khait and U.S. Pat. No. 6,180,685 also to Khait, the disclosures of which are incorporated herein by reference. As disclosed in the Khait patents, a chemical change to a polymer material is effected by application of mechanical energy through solid-state shear pulverization in the presence ~~preseee~~ of cooling sufficient to maintain the material in the solid state during pulverization. However, the Khait patents do not disclose or suggest a method of producing highly exfoliated polymer-clay nanocomposites.

Please amend the paragraph set forth at page 7, lines 2-7 of the specification as follows:

[0031] A mixture of polypropylene-organoclay was provided, comprising about 90% polypropylene and about 10% organoclay. The organoclay was obtained from Nanacor<sup>TM</sup>, and contained about 40-50% clay content and about 50-60% organic content. Specifically, Nanacor.TM. C.30P clay was used, which is a montmorillonite nanoclay in

de-agglomerated form. (Physical properties of C.30P: 40-50% nanoclay content; 38-42 lb./ft.<sup>3</sup> bulk density; 0.2% max. moisture). All percentages reported herein are based on weight percentage, unless expressly stated otherwise.

Please amend the paragraph set forth at page 7, line 22 to page 8, line 9 of the specification as follows:

[0035] As best shown in FIGS. 3-5, relative levels of exfoliation in the resulting nanocomposites were then compared by x-ray scattering testing. Scattering intensity ~~on~~ was graphed on the y-axis, and correlated to scattering angle on the x-axis. Scattering peaks are observed in poorly exfoliated samples at a scattering angle of about 3 degrees, which is quantitatively related to the interlayer distance between the layers of organoclay sheets that were not exfoliated. Peak intensity decreases with an increasing degree of exfoliation. The organoclay used in this example had an interlayer distance of about 26 to 30 Angstroms. Therefore, the scattering angle may vary depending on the specific properties of the particular clay used, as noted above. The scattering peak of the Nanacor<sup>TM</sup> C.30P organoclay masterbatch M, without any mixing with polypropylene, is just under 15,000 counts scattering intensity, as best shown in FIGS. 3-4. A sharp peak is present at a scattering angle of between about 3-4 degrees in masterbatch M, which indicates a high level of gallery spacing regularity. (The approximate interlayer spacing distance is therefore approximately 2.5 nm). The scattering peak of the unmodified clay U (i.e. without any organic content) used by Nanacor<sup>TM</sup> to produce the masterbatch of organoclay is more than 10,000 counts scattering intensity, as best shown in FIG. 3. The scattering intensity near 3 degrees of samples M and U indicates a high level of spacing

regularity, with the clay sheets having a consistent layering distance from each other of about 26 to 30 Angstroms.